We claim:

1. A process for increasing an aromatic content of a reformate stream comprising the steps of:

supplying and reacting a hydrocarbon feed stream in a first reactor to produce a first reactor effluent stream;

cooling and partially condensing the first reactor effluent stream in a first cooler to produce a first vapor stream and a first liquid stream;

cooling and partially condensing the first vapor stream in a second cooler to produce a second vapor stream and a second liquid stream;

combining and cooling the first and the second liquid streams and sending the first and the second liquid streams to a reformate pool; and

heating the second vapor stream and sending the second vapor stream to a second reactor.

2. The process according to claim 1, wherein the step of cooling and partially condensing the first reactor effluent stream to produce a first vapor stream and a first liquid stream and the step of cooling and partially condensing the first vapor stream to produce a second vapor stream and a second liquid stream are combined and performed in a first absorber.

3. The process according to claim 1, wherein the step of cooling the first reactor effluent stream includes cooling the first reactor effluent stream by heat exchange contact with the second vapor stream thereby simultaneously performing the step of heating the second vapor stream.

4. The process according to claim 1, wherein the hydrocarbon feed stream includes hydrocarbons having five to approximately ten carbon atoms.

5. The process according to claim 1, wherein a substantial amount of the hydrocarbon feed stream is defined by a boiling range of approximately 80 deg F to 400 deg F.

6. The process according to claim 1, wherein the step of supplying a hydrocarbon feed stream includes supplying a hydrocarbon at a temperature within a temperature range of about 500 °F to about 1200 °F and a pressure in a pressure range of about 15 psig to about 1000 psig.

7. The process according to claim 1, wherein the step of cooling the first reactor effluent stream includes cooling the first reactor effluent stream to a temperature in a range of about 250 °F to about 400 °F.

8. The process according to claim 1, wherein the step of cooling the first vapor stream includes cooling the first vapor stream to a temperature in a range of about 240 °F to about 360 °F.

9. The process according to claim 1, wherein the step of heating the second vapor stream includes heating the second vapor stream to a temperature in a range of about 500°F to about 1200 °F.

10. The process of claim 1, further including supplying a portion of the hydrocarbon feed stream to the second reactor as a second hydrocarbon feed stream.

11. The process of claim 1, further including controlling the step of cooling the first reactor effluent stream based upon a first discharge temperature of the first cooler and a second discharge temperature of the second cooler.

12. The process according to claim 1, further including the steps of:

reacting the second vapor stream in the second reactor to produce a second reactor effluent stream;

cooling and partially condensing the second reactor effluent stream in a fourth cooler to produce a third vapor stream and a third liquid stream;

cooling and partially condensing the third vapor stream in a fifth cooler to produce a fourth vapor stream and a fourth liquid stream;

combining the third and fourth liquid streams and sending them to the reformate pool; and

heating the fourth vapor stream and sending the fourth vapor stream to a third reactor.

13. The process according to claim 12, wherein the step of cooling and partially condensing the second reactor effluent stream to produce a third vapor stream and a third liquid stream and the step of cooling and partially condensing the third vapor stream to produce a fourth vapor stream and a fourth liquid stream are combined and performed in a second absorber.

14. The process according to claim 12, further including supplying a portion of the hydrocarbon feed stream to the third reactor as a third hydrocarbon feed stream.

15. The process according to claim 12, wherein the step of cooling the second reactor effluent stream includes cooling the second reactor effluent stream to a temperature in the range of about 250 °F to about 400 °F.

16. The process according to claim 12, wherein the step of cooling the third vapor stream includes cooling the third vapor stream to a temperature in the range of about 240 °F to about 360 °F.

17. The process according to claim 12 wherein the step of heating the fourth vapor stream includes heating the fourth vapor stream to a temperature in a range of 500 °F to about 1200 °F.

18. The process according to claim 12, further including controlling the step of cooling the second reactor effluent stream based upon a fourth discharge temperature of the fourth cooler and a fifth discharge temperature of the fifth cooler.

19. A process for forming aromatic compounds from a reformate stream comprising the steps of:

supplying and reacting a hydrocarbon feed stream in a first reactor to produce a first reactor effluent stream;

cooling and partially condensing the first reactor effluent stream in a first cooler to produce a first vapor stream and a first liquid stream;

cooling and partially condensing the first vapor stream in a second cooler to produce a second vapor stream and a second liquid stream;

combining and cooling the first and the second liquid streams and sending the first and the second liquid streams to a reformate pool;

heating the second vapor stream and then sending a first portion of the second vapor stream to the second reactor and a second portion of the second vapor stream to a third reactor;

reacting the first portion of the second vapor stream in the second reactor to produce a second reactor effluent stream; and

combining the second reactor effluent stream with the first reactor effluent stream and cooling and partially condensing the first reactor effluent stream in the first cooler thereby cooling and partially condensing the second reactor effluent stream along with the first reactor effluent stream.

20. The process according to claim 19, wherein the step of cooling and partially condensing the first reactor effluent stream to produce a first vapor stream and a first liquid stream and the step of cooling and partially condensing the first vapor stream to produce a second vapor stream and a second liquid stream are combined and performed in a first absorber and the step of cooling and partially condensing the second reactor effluent stream to produce a third vapor stream and a third liquid stream and the step of cooling and partially condensing the third vapor stream to produce a fourth vapor stream and the fourth liquid stream are combined and performed in a second absorber.

21. The process according to claim19, further including supplying a portion of the hydrocarbon feed stream to the second reactor as a second hydrocarbon feed stream.

22. The process according to claim 19, further including supplying a portion of the hydrocarbon feed stream to the third reactor as a third hydrocarbon feed stream.

23. The process according to claim 19, further including controlling the steps of cooling the first and the second reactor effluent streams based upon a first discharge temperature of the first cooler and a second discharge temperature of the second cooler.

24. The process according to claim 19 wherein the first reactor includes a series of reformer reactors.

25. An apparatus for increasing aromatic content of a reformate stream comprising:

a first reactor for receiving and reacting a hydrocarbon feed stream within to produce a first reactor effluent stream;

a first absorber for cooling and partially condensing the first reactor effluent stream to produce a first vapor stream and a first liquid stream and a second cooler for cooling and partially condensing the first vapor stream to produce a second vapor stream and a second liquid stream;

a first heater for heating the second vapor stream to produce a heated second vapor stream; and

a second reactor for receiving the heated second vapor stream.

26. The apparatus according to claim 25 further comprising a third cooler for cooling the first and second liquid streams.

27. The apparatus according to claim 25, wherein the first absorber comprises a first cooler for cooling and partially condensing the first reactor effluent stream to produce the first vapor stream and the first liquid stream and a second cooler for cooling and partially condensing the first vapor stream to produce the second vapor stream and the second liquid stream.

28. The apparatus according to claim 25, wherein the first cooler and the first heater comprise a single heat exchanger that provides heat exchange contact between the first reactor effluent stream and the second vapor stream.

29. The apparatus according to claim 25, further including a first temperature controller for controlling cooling the first reactor effluent stream based upon a first discharge temperature of the first cooler and a second discharge temperature of the second cooler.

30. The apparatus according to claim 25, further comprising:

a second absorber for cooling and partially condensing the second reactor effluent stream to produce a third vapor stream and a third liquid stream and for cooling and partially condensing the third vapor stream to produce a fourth vapor stream and a fourth liquid stream;

a sixth cooler for cooling the third and fourth liquid streams; and

a second heater for heating the fourth vapor stream; and

a third reactor for receiving the fourth vapor stream.

31. The apparatus according to claim 30, wherein the absorber comprises:

a fourth cooler for cooling and partially condensing the second reactor effluent stream to produce the third vapor stream and the third liquid stream; and

a fifth cooler for cooling and partially condensing the third vapor stream to produce a fourth vapor stream and a fourth liquid stream.

32. The apparatus according to claim31, wherein the fourth cooler and the second heater comprise a single heat exchanger that provides heat exchange contact between the second reactor effluent stream and the fourth vapor stream.

33. The apparatus according to claim31, further including a second temperature controller for controlling cooling the second reactor effluent stream based upon a fourth discharge temperature of the fourth cooler and a fifth discharge temperature of the fifth cooler.